

3 Days

Java Performance Tuning and Optimization

The Java Performance Tuning and Optimization training will impart knowledge to developers of performance tuning methodologies, performance tuning theories and practical tips that can be implemented to solve complex performance problems for Java applications. This course will provide hands-on exercises derived from real world performance tuning issues that will develop your skills to optimize Java Programming Language platform.

Completion of this training course will enable candidates in:

- Monitoring Java applications.
- Tuning garbage collection in a Java application.
- Deploying various tools and mechanisms for monitoring, profiling and tuning Java applications.
- Setting up a performance tuning environment.
- Tuning the performance of a Java application at the language level.
- Applying rigor to the task of performance tuning.
- Applying best practices for performance testing.

Course Benefits:

This course helps individuals to build applications using the Java programming language and develop the core skills to implement interfaces and handle Java programming exceptions while using object-oriented programming techniques learned through this training.

Course Details

Course Outline

1. Introduction to Java Performance Tuning

- Course Introduction
- Course Agenda

2. JVM and Performance Overview

- Overview of JVM
- Performance Principles
- Performance Methodology
- Common Performance Problems

- Development and Performance

3. Monitoring Operating System Performance

- Monitoring CPU Usage
- Monitoring Network I/O
- Monitoring Disk I/O
- Monitoring Virtual Memory Usage
- Monitoring and Identify Lock Contention

4. Monitoring the JVM

- HotSpot Generational Garbage Collector
- Monitoring the Garbage Collector with Command Line Tools
- Monitoring the Garbage Collector with VisualVM
- Monitoring the JIT Compiler
- Throughput and Responsiveness

5. Performance Profiling

- NetBeans Profiler, Oracle Solaris Studio, and jmap/jhat
- Profiling CPU Usage
- Profiling JVM Heap
- Finding Memory Leaks
- Identifying Lock Contention
- Heap Profiling Anti-patterns
- Method Profiling Anti-patterns

6. Garbage Collection Schemes

- JVM Ergonomics
- Generational Garbage Collection
- Garbage Collection Algorithms
- GC Performance Metrics
- Types of Garbage Collectors

7. Language Level Concerns and Garbage Collection

- The use of Finalizers
- Invoking the Garbage Collector
- Reference Types in Java
- The best practices for Object Allocation

8. Garbage Collection Tuning

- Tune the Garbage Collection
- Interpret GC Output
- Select the Garbage Collector

9. Performance Tuning at the Language Level

- Collection Classes
- Using Threads
- Using I/O Efficiently
- String-efficient Java Applications

Who Should Attend

The Java Performance Tuning and Optimization certification Course is ideal for:

- Architect
- Java Developers
- Support Engineer
- Technical Consultant
- Java EE Developers

Pre Requisite

- Know Use of object-oriented programming techniques
- Develop applications using the Java programming language
- Implement interfaces and handle Java programming exceptions

Suggested Prerequisites:

- Administer basic Windows, Linux or Solaris systems
- Developing Applications with the Java SE 6 Platform Training

